

City of Moreno Valley Energy Efficiency and Climate Action Strategy



Prepared by the City of Moreno Valley Planning Division and the Energy Efficiency and Conservation Task Force

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Summary

The City of Moreno Valley recognizes the impact of global climate change from carbon dioxide emissions arising from the activities of the City organization as well as the community's residents, businesses and visitors. Furthermore, the City recognizes the benefits achieved through energy and resource efficiency measures in reducing the community's carbon dioxide emissions as well as improving air quality, energy reliability and economic well-being in the City and region. The City recognizes the need to reduce our energy use and greenhouse gas emissions and become a more sustainable community. The City of Moreno Valley Energy Efficiency and Climate Action Strategy (hereafter referred to as "Strategy") is a policy document which identifies ways that the City of Moreno Valley can reduce energy and water consumption and greenhouse gas emissions as an organization (its employees and the operation of its facilities) and outlines the actions that the City can encourage and community members can employ to reduce their own energy and water consumption and greenhouse gas emissions.

Introduction

The City of Moreno Valley's Energy Efficiency and Climate Action Strategy main objectives are to reduce the environmental impact and fiscal impact of energy usage and greenhouse gas emissions in municipal facilities and within the community. The genesis of the Strategy is the Federal Energy Efficiency and Conservation Block Grant awarded to the City to implement energy efficiency projects and strategies for the City as an organization. At the request of the City Council, the scope of the grant was expanded to include the preparation of a climate action strategy. With City Council support, City staff has applied for energy efficiency grants. In June 2010 the City was awarded a \$375,000 (SCE) Southern California Edison Strategic Solicitation for the purpose of expanding the scope of the Strategy and its implementation, including the preparation of a greenhouse gas inventory for the community.

The Strategy is intended to be a comprehensive living policy document for the City organization and the community to address energy and water conservation and effects of climate change. The Strategy is organized into two main sections: Energy Efficiency (City as an organization) and Climate Action (City as a community). The Strategy also contains a Greenhouse Gas Analysis component. The Greenhouse Gas Analysis is also separated into two parts, the City as an organization and the City as a community.

The City realizes the challenges the community may face due to climate change and excess energy and water consumption. With the implementation of energy and water conservation and greenhouse gas reduction measures, training and public awareness, the expected results are the reduction of greenhouse gas emissions and energy and water consumption. In implementing the Strategy, the City's General Plan may need to be updated to reference the Strategy for guidance on energy efficiency and greenhouse gas reduction.

In recent years, the State of California adopted several bills to address energy and climate issues, Assembly Bill 32 and Senate Bill 375.

Assembly Bill 32 establishes a statewide greenhouse gas emissions cap which requires emissions to be reduced to 1990 levels by the year 2020. The bill includes mandatory

reporting rules, adoption of a plan and regulations to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, including provisions for using both market mechanisms and alternative compliance mechanisms. Greenhouse gases, as defined under AB 32, include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The Air Resources Board (ARB) is the State agency charged with monitoring and regulating emissions of greenhouse gases. Under the current "business as usual" scenario, statewide emissions are increasing at a rate of approximately 1% per year as noted below.

California Senate Bill 375 provides emission-reducing goals so regions can plan to integrate disjointed planning and provide incentives for local governments and developers to follow new conscientiously-planned growth patterns. SB 375 enhances the Air Resources Board's (ARB) ability to reach AB 32 goals. For California to reach its greenhouse gas reduction goals, communities must address how they grow. This law directs the ARB to set greenhouse gas reduction targets for regions of the state and work with California's 18 metropolitan planning organizations (MPOs) to align their transportation, housing, and regional land-use plans with greenhouse gas reductions in mind. SB 375 has three goals: (1) to use the regional transportation planning process to help achieve Assembly Bill 32 goals; (2) to use CEQA streamlining as an incentive to encourage residential projects which help achieve AB 32 goals to reduce greenhouse gas emissions (GHG); and (3) to coordinate the regional housing needs allocation process with the regional transportation planning process to reduce vehicle miles traveled. SB 375 will be responsible for reshaping the face of California's communities into more sustainable, walkable communities with alternative transportation options and increased quality of life.

Overview of Energy Efficiency

The Energy Efficiency section's primary focus is to identify potential energy efficiency measures for the City as an organization, both those that have been implemented and those that could be implemented in the future. In addition, the document provides direction and policies to ensure the most effective, practical, and affordable, energy use practices are implemented.

Overview of Climate Action

The focus of the Climate Action section is to promote measures similar to those identified in the Energy Efficiency section and additional measures that can be implemented by the community's residents and businesses to reduce greenhouse gas emissions on a community-wide basis. The Climate Action Strategy includes an analysis of existing and future greenhouse gas emissions community wide and provides a set of policies to guide efforts to reduce greenhouse gas emissions to meet or exceed State requirements without unduly compromising other community goals.

Overview of the Greenhouse Gas Analysis

The analysis was completed under the premise that the City and the community it represents are uniquely capable of addressing emissions associated with sources under the City's jurisdiction. The City's emission reduction efforts should coordinate with the

state strategies in order to accomplish emission reductions in an efficient and cost effective manner. The City developed this document with the following purposes in mind:

- Create a GHG baseline from which to benchmark GHG reductions;
- Provide a plan that is consistent with and complementary to: the GHG emissions reduction efforts being conducted by the State of California through the Global Warming Solutions Act (AB 32); the Federal Government through the actions of the Environmental Protection Agency; and the global community through the Kyoto Protocol; and
- Guide the development, enhancement, and implementation of actions that reduce GHG emissions.

This report establishes 2010 as the year on which to base the existing inventory; this is the most recent year for which reliable data concerning the City's residential, commercial, and government operations are available. Sources of emissions include transportation, electricity and natural gas use, landscaping, water and wastewater pumping and treatment, and treatment and decomposition of solid waste. The 2007 inventory represents conditions prior to the economic recession and will be used to set the target for reducing emissions by the year 2020. The 2010 inventory was calculated using the most recent data available. The 2010 inventory serves as a reference against which to measure the City's progress towards reducing GHG emissions since 2007 and into the future, and also serves as documentation for potential emission trading opportunities.

Moreno Valley's 2010 municipal operations inventory includes sources and quantities of GHG emissions from government owned or rented buildings, facilities, vehicles, and equipment. The community-wide emissions inventory identifies and categorizes the major sources and quantities of GHG emissions being produced by residents, businesses, and municipal operations taking place in the City of Moreno Valley using the best available data. By having the municipal emissions separated from the community as a whole, the local government can implement reduction strategies where it has direct control, closely monitor the changes in emissions over time, and set an example for the rest of the City.

2010 Municipal Emissions Inventory

		/								
Table 3-1 2010 Municipal Data Inputs										
Category	Data Input	Data Source								
Electricity (kWh)	9,937,015 3,847,738	SCE MVU								
Natural Gas (therms)	90,651	SCG								
Vehicle Fleet Gasoline(gallons) Diesel (gallons)	77,325 28,544	Fleet Manager Special Districts								
Equipment Gasoline(gallons) Diesel (gallons)	2,118 2,208	Parks Division Special Districts								
Employee Commute (responses)	141	Employee Survey								

The community-wide inventory represents all emissions from sources located with the jurisdictional boundaries of the City of Moreno Valley. Therefore, the municipal emissions described in the previous section are a subset of the community-wide inventories presented here. In 2010, the City of Moreno Valley emitted a total of 920,657 MT CO₂e from the community as a whole. The following sections describe the data inputs, emissions by source, and emissions by land use in 2010.

2010 Community-Wide Emissions Inventory

Table 3-5 2010 Community-Wide Data Inputs									
Category	Data Input	Data Source							
Electricity (kWh)	633,215,207	SCE							
	62,138,000	MVU							
Natural Gas (therms)	26,266,326	SCG							
Transportation									
Annual Vehicle Miles Traveled	1,077,909,543	City Traffic Engineer							
Annual Trips	110,098,975								
Area Source (based on land use)									
SFR (units)	42,642								
MFR (units)	9,387	City Planning							
Commercial (ksf)	8,325								
Industrial (ksf)	12,695								
Solid Waste (tons)	144,824	CIWMB							
Mator (AE)	26,183	EMWD							
Water (AF)	87	Box Springs Mutual							

With the implementation of GHG reduction measures, Moreno Valley is projected to reduce its community-wide emissions to a total of 798,137 MT CO₂e, which is 556 MT CO₂e below the 2020 reduction target. This is a decrease of 38.5 percent from the City's 2020 BAU emissions inventory and 13 percent from the 2010 emissions. The reduction measures reduce GHG emissions from all sources of community-wide GHG emissions including transportation, energy, area sources, water, and solid waste. The following sections describe the emissions by source and land use category for the year 2020.

This report sets a baseline for the City's GHG emissions, projects how these emissions will grow, and includes strategies to reduce emissions to a level consistent with California's emissions reduction target. These strategies complement the City's General Plan policies and are consistent with Moreno Valley's vision for a more sustainable community.

Greenhouse Gas Analysis Reduction Policies

The purpose and intent of these policies is to achieve compliance with AB 32 and reduce GHG by 15% by 2020. In 2020, the City of Moreno Valley is projected to emit a total of 1,298,543 MT CO2e without the incorporation of GHG reduction policies. The statewide reduction measures would reduce the bulk of Moreno Valley's emissions and make a substantial contribution toward reaching the 2020 reduction target. However, the City would still need to supplement the statewide measures with the implementation of local reduction policies, in order to achieve 15% reduction in GHG by 2020. Future local policy

measures will require decision-maker approval. These reduction measures include the following:

- R2-T1: Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.
- R2-T3: Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
- R2-E1: New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10% beyond the current Title 24 standards. (Reach Code)
- R2-E2: New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar (photovoltaic) panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources offsite.
- R2-E5: New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards. (Reach Code)
- R3-E1: Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.
- R3-L2: Heat Island Plan. Develop measures that address "heat islands." Potential
 measures include using strategically placed shade trees, using paving materials
 with a Solar Reflective Index of at least 29, an open grid pavement system, or
 covered parking.
- R2-W1: Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.
- R3-W1: Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
- R2-S1: City Diversion Program. For Solid Waste, consider a target of increasing the waste diverted from the landfill to a total of 75% by 2020.

Examples of current statewide and regional planning efforts to reduce GHG emissions are identified in the GHG analysis. Current City efforts include working with RTA to continue to provide timely and effective transit services, and promoting existing incentive

programs for residents that promote residential and commercial energy efficient retro-fits, such as WRCOG's low interest loan programs. These current City efforts wouldn't involve any changes in current City policy or ordinances.

City's Current Goals and Objectives

The City's General Plan includes goals and objectives to achieve energy conservation through land use planning, building design, site planning, compliance with State Title 24 energy savings requirements, and rehabilitation of existing structures. The General Plan also includes measures to reduce traffic congestion and provide more opportunities for walking and bicycling. Other areas of conservation include the use of water efficient irrigation and landscape and coordinated efforts with local water districts to use reclaimed water; recycling; and exterior lighting standards. See Section III Appendix _ for specific General Plan goals and objectives.

SECTION I – ENERGY EFFICIENCY

Current Energy Efficiency Practices

The City currently employs a variety of measures in municipal operations that reduce consumption of energy and water and reduce the amount of solid and green waste sent to a landfill. The City has also purchased alternative fuel vehicles that reduce the consumption of gasoline. The following is an outline of completed energy savings projects and current energy saving practices. Many of these activities have been made possible with grant funding.

Reduced Energy Consumption

	Energy Reduction Measures	Cost Effectiveness	Practice	Policy	Lead Division
A1.	New buildings constructed in City parks use solar tubes for day time lighting.	High	√		Parks & Community Services
A2.	Photo cells are used for lighting park grounds and buildings along with automatic shutoff timers.	High	√		Parks & Community Services
A3.	Park lighting is shut down at 10 p.m. except where needed to address safety issues.	High	√		Parks & Community Services
A4.	Sport field lights at parks have been replaced with more efficient fixtures with an average energy savings of at least 30%.	High	√		Parks & Community Services

A5.	Applied window tint/film to City Hall windows to make facility more energy efficient, comfortable, and reduce energy cost. (Completed January 2011)	High	√	Planning
A6.	Routine maintenance is performed on all City heating, ventilation, and air conditioning (HVAC) units to keep them running efficiently.	High	√	Purchasing & Facilities
A7.	Replacement of HVAC system at City Hall (completed September 2011) resulting in substantial reduction in energy use and cost, and improved comfort and reliability.	High	√	Purchasing & Facilities
A8.	Conference and Recreation Center and Public Safety Building have computer systems that allow continuous control of the HVAC systems that can be adjusted offsite and scheduled to go on and off depending on the use of a particular room.	High	√	Purchasing & Facilities
A9.	T12 florescent light fixtures have been converted to T8 fixtures which use less energy. Retrofit sites are the Senior Center, Library, City Hall, and Fire Stations 6, 48 and 65.	High	~	Purchasing & Facilities
A10.	Light sensors have been installed in some rooms at City Hall which turn off the lights when the room is not in use.	High	✓	Purchasing & Facilities
A11.	Traffic signals synchronized to improve traffic flow and reduce air pollution and gas consumption.	High	√	Transportation Engineering
A12.	Traffic signal lights retrofitted in 2006 with LED light fixtures, with a reduction of 60% power usage. Newer traffic signal lights installed with LED fixtures.	High	√	Transportation Engineering
A13.	City replaced all fluorescent bulbs in Internally Illuminated Street Name Signs with LED lights that enhance visibility, street safety, and last longer. Annual cost savings of about 50% realized due to less use of electricity and less maintenance due to longer life expectancy of LED.	Medium	~	Transportation Engineering

A14.	MV Utility analyzed alternative technologies for street lighting. A pilot program for LED street lights is scheduled to begin June 2013, one for induction lighting was completed September 2010, and testing of a device that controls the energy use of the ballast in High Pressure Sodium lighting was completed July 2012.	Medium	*	Special Districts
A15.	City Hall fans run while the building is occupied to maintain a comfortable temperature and a humidity level of 60%, and reduce carbon dioxide levels, per Title 24.	Low	~	Purchasing & Facilities

Reduced Water Consumption

	Water Reduction Measures	Cost Effectiveness	Practice	Policy	Lead Division
A16.	Park restrooms and other buildings are installed with automatically shut off faucets.	High	√		Parks & Community Services
A17.	Reclaimed water for irrigation is used on about 40 acres of City park land.	High	√		Parks and Community Services
A18.	Newer irrigation systems at City parks utilize smart controllers which are self-regulating and utilize a central weather station or have their own weather stations.	High	√		Parks and Community Services
A19.	City adopted new landscape standards which require the use of drought tolerant landscape and water efficient irrigation in new installations and most retrofit projects.	High		√	Planning
A20.	Approximately 60 acres of landscaped parkways and medians are irrigated by reclaimed water. Each year roughly 345 Acre feet or 112,535,000 gallons of reclaimed water are consumed.	High	√		Special Districts
A21.	Purchasing & Facilities Division tested 0.5 gallon per minute aerators for restroom faucets. Currently, 2.0 and 2.2 per minute gallon aerators are used. The 0.5 gallon aerators were not installed as faucet ran too long for hot water to flow out.	High	~		Purchasing & Facilities
A22.	Synthetic turf was installed at Community Park soccer fields to conserve water and increase use time.	Medium	√		Parks and Community Services
A23.	Facilities staff researched use of waterless urinals. Maintenance requirements and costs were too high to justify use in public restrooms.	Low	√		Purchasing & Facilities

Recycling and Diversion

	Recycling and Diversion Measures	Cost Effectiveness	Practice	Policy	Lead Division
A24.	Maintenance & Operations has a program to recycle asphalt concrete. Existing pavement is ground up and used as base for repaving. Unused material is stored for future use.	High	√		Maintenance & Operations
A25.	All City facilities have recycling programs.	High	√	✓	Maintenance & Operations
A26.	City recycling programs include: Procurement Policy, City Facilities Recycling Program, Animal Shelter Lonely Hearts Adoption Program, School Recycling Program, Residential Recycling, Curbside & Buy-back, Voluntary Commercial Recycling, C&D Recycling, CIP Program, Community Outreach, Grasscycling, Mulch, and Composting Workshops.	High	*	~	Maintenance & Operations
A27.		High	√		Maintenance & Operations
A28.	Rubberized asphalt concrete has been used on City street projects when cost is comparable to regular asphalt concrete. Recycled tires are used. Advantages include reduced road noise, reduced braking distance, and longer life to road surface.	Medium	✓		Capital Projects
A29.		Medium	√		Capital Projects
A30.	In central plant recycling, reclaimed asphalt pavement is screened, crushed, sized, and mixed with an asphalt rejuvenator. The recycled mix is transported immediately to a job site, or stockpiled for later use.	Medium	√		Capital Projects
A31.	City uses green recycled janitorial products at City Hall and the Facilities Annex.	Low	√	√	Purchasing & Facilities

Alternative Fuel Vehicles

	Alternative Fuel Vehicle Measures	Cost Effectiveness	Practice	Policy	Lead Division
A32.	Retrofit completed of diesel engines vehicles to comply with laws to make diesel engines cleaner burning. Phase I completed December 2009, Phase II completed December 2011.	High	√		Maintenance & Operations
A33.	City has one electric vehicle and four natural gas vehicles (two street sweepers, one pick up truck, and one storm drain cleaning truck).	Medium	√		Maintenance & Operations

Education

The City of Moreno Valley currently promotes education related to energy efficiency by participating in partnerships and organizations that promote energy efficiency and by attending seminars, workshops and trade shows related to green building, water conservation, and facility maintenance.

The City of Moreno Valley participates in the following organizations:

- Community Energy Partnership this partnership identifies incentives and rebates for City and developer projects.
- Energy Coalition Facilities Maintenance Division has completed energy audits for five buildings with the Energy Coalition.
- WRCOG Clean Cities public-private partnership dedicated to achieving improved air quality, energy security, economic development, and transportation goals.
- WRCOG Air Quality Task Force the task force brings together cities and local resources to share information on efforts and funding opportunities to improve air quality in the region.
- WRCOG Solid Waste Technical Committee the task force compromised of staff from each of WRCOG's member agencies and meets to discuss solid waste and recycling issues and makes recommendations to the WRCOG's Technical Advisory Committee on matters directly relating to Western Riverside County.
- Riverside County Solid Waste Management Advisory Council (Countywide Local Task Force) – this group provides advisory to the County's Planning Commission and Board on all substantive waste management issues and solid waste facility land use matters, and also assists the County and its cities in meeting AB939 requirements, from the preparation and revision of the Countywide Integrated Waste Management Plan (CIWMP) to reviewing and commenting on solid waste facilities and their expansions for consistency and recycling goals to the Department of Resources, Recycling and Recovery.

Proposed Energy Efficiency Policies

The following energy efficiency measures are suggested as policies and programs for municipal operations. The suggested measures include current practices of the City of Moreno Valley along with recommendations from the City's Energy Efficiency Task Force and the practices and policies of other jurisdictions. Many of the policies and programs will require additional study and formal adoption by the City Council prior to becoming effective.

	Reduction Measures Section I	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
B1.	Use reclaimed water for City buildings, facilities, parks and parkways where connection to reclaimed water lines is feasible.		√					High	Capital Projects or Contracting Division / Department
B2.	Participate in Savings by Design or similar program to identify ways to improve the energy efficiency for all new City buildings and facilities.	√						High	Capital Projects or Contracting Division / Department
В3.	Establish policy to meet a green building rating system standard or standard beyond Title 24 for all new buildings and retrofits over 5,000 square feet.	~						High	Capital Projects
B4.	Coordinate with Southern California Edison or Moreno Valley Utility, Eastern Municipal Water District, and The Gas Company to maximize rebates for all building projects.	√						High	Capital Projects or Contracting Division / Department
B5.	Require life cycle cost for all new facilities and retrofits over 5,000 square feet that compare initial and long-term costs for projects. Include analysis in City Council reports, to inform decision makers of total costs of projects.	√						High	Capital Projects

	Reduction Measures Section I	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
B6.	Benchmark all City facilities in the Energy Star web site, to monitor energy use at City facilities.	V	Heduction	Diversion			LIIIISSIOII	High	Electric Utility
B7.	Include all City facilities in recycling programs. Establish a 75% diversion rate goal.			✓				High	Maintenance & Operations
B8.	Recycle existing asphalt concrete for used as base for streets whenever feasible. Store recycled material not used immediately.			√				High	Maintenance & Operations
B9.	Seek funding for alternative fuel and fuel efficient vehicles and diesel retrofits.				~			High	Maintenance & Operations
B10.	Establish minimum fleet mileage standard for fleet vehicles.				√			High	Maintenance & Operations
B11.					✓			High	Maintenance & Operations
B12.	Restrict use of turf at City buildings and facilities to gathering areas and useable open space. Replace low use turf areas with drought tolerant plants.		√					High	Parks & Community Services
B13.	Use smart controllers for all City projects consistent with City Landscape Standards. Retrofit existing controllers as funding is available.		√					High	Parks & Community Services

	Reduction Measures Section I	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
B14.	Require new buildings constructed in City parks use solar tubes or equal design for daytime lighting.	✓						High	Parks & Community Services
B15.	Install energy efficient fixtures for all new sport field lights. Retrofit existing lights as funding is available.	√						High	Parks & Community Services
B16.	Establish an energy efficiency revolving fund to deposit energy savings, rebates and incentives. The policy should consider the following funding sources: 100% of rebate and incentive money and 50% of energy bill savings from energy efficiency projects.	~						High	Planning
B17.	Host annual Energy Efficiency Day for employees with demonstrations and literature on energy saving products and practices for work and at home. This activity helps maintain Gold level status with Energy Coalition.	√					~	High	Planning
B18.	Encourage employees to submit energy efficiency recommendations for City operations and assess them.	√						High	Planning
B19.	Install light sensors, which turn off the lights when a room is not in use, wherever practical.	√						High	Purchasing & Facilities

	Reduction Measures Section I	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
B20.	Allow for safety concerns for City facilities and reduce or turn off exterior and interior lights when facilities are not in use.	~						High	Purchasing & Facilities
B21.	Include in all City leases permission to do energy retrofits (e.g. replace light bulbs).	√						High	Purchasing & Facilities
B22.	Set City building thermostats at Federal and State recommendations, currently 68 degrees (winter) and 78 degrees (summer), wherever possible.	~						High	Purchasing & Facilities
B23.	Utilize an energy monitoring system to track electricity use and identify areas/facilities that can be operated more efficiently.	√						High	Purchasing & Facilities
B24.	Provide routine maintenance of the heating and air conditioning (HVAC) systems at City facilities.	√						High	Purchasing & Facilities
B25.	Complete periodic energy audits of all City facilities to identify energy efficiency opportunities and implement all cost effective recommendations.	~						High	Purchasing & Facilities
B26.	Replace interior and exterior lighting fixtures with more energy efficient fixtures as they become available and cost effective, as funding is available.	√						High	Purchasing & Facilities

	Reduction Measures Section I	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
B27.	Base purchasing decisions on environmental information and life cycle costs.	√						High	Purchasing & Facilities
B28.	Install computer monitoring systems in new City facilities to allow continuous control of HVAC systems. Retrofit existing facilities as funding becomes available.	~						High	Purchasing & Facilities
B29.	Install automatic shutoff faucets and 0.5 gallon per minute aerators in new City buildings and facilities wherever practical. Replace existing faucets and aerators as funding is available.		√					High	Purchasing & Facilities
B30.			√					High	Special Districts
B31.			✓					High	Special Districts

	Reduction Measures Section I	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
B32.	Establish guideline that identifies criteria for using 'green concrete' or concrete made with recycled aggregate. Use reduces CO ₂ emissions and solid waste sent to landfills.			√				Medium	Capital Projects
B33.	Document municipal green building efforts and post-occupancy building performance metrics on the City website for use as a resource for the development community.	~						Medium	Capital Projects
B34.	Establish guideline that identifies criteria for using rubberized asphalt concrete for City projects.			√				Medium	Capital Projects
B35.	Consider moving City electric load off-peak to reduce peak demand and take advantage of lower rates.	√						Medium	Electric Utility
B36.	Identify opportunities for on- site renewable energy generation on City-owned and private property.	√						Medium	Electric Utility
B37.	Establish a zero waste policy to require everything to be recycled, with minimal disposables allowed and encourage composting.			√				Medium	Maintenance & Operations
B38.	Require use of photo cells and automatic shutoff timers in park buildings wherever practical.	√						Medium	Parks & Community Services

	Reduction Measures Section I	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
B39.	Coordinate with near by jurisdictions to implement regional energy efficiency programs.	√						Medium	Planning
B40.	Use green/recycled janitorial products at City facilities whenever cost effective.			√				Medium	Purchasing & Facilities
B41.	Provide bicycle parking at City facilities.				~			Medium	Purchasing & Facilities
B42.	Research potential savings of synthetic turf and/or low water use plantings in medians, assessing installation, maintenance and water costs.		√					Medium	Special Districts
B43.	Consider use of timers on street lights to shut off during late evening and early morning hours when traffic volumes are low, pursuant to adoption of a policy regarding hours of operation for streetlights.	√						Medium	Special Districts
B44.	Provide incentives for City staff to develop expertise and certification in green building strategies.	~	√	√	V	√	~	Low	Building
B45.	Consider adding charge stations and other alternative fuel facilities at City facilities.				√			Low	Maintenance & Operations
B46.	Assess use of low flow toilets and waterless urinals as performance improves and maintenance costs drop.		~					Low	Purchasing & Facilities

	Reduction Measures Section I	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
B47.	Require operation of ventilation fans at all City facilities when occupied to maintain a comfortable temperature, humidity level of 60%, and reduce carbon dioxide levels.	~						Low	Purchasing & Facilities
B48.	Replace paper towel dispensers with air dryers in City facilities where practical and cost effective.			√				Low	Purchasing & Facilities
B49.	Establish LED standard (fixture and spacing) for streetlights for new installations and retrofit existing lights as funding permits.	~						Low	Transportation Engineering

SECTION II - CLIMATE ACTION STRATEGY

Proposed Climate Action Policies

The following energy efficiency measures are suggested as policies for the City of Moreno Valley as a community. The suggested measures include recommendations from the City's Energy Efficiency Task Force and the practices and policies of other jurisdictions.

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
C1.	Install light colored "cool" roofs and cool pavements. (Cool roofs are a requirement per State Title 24/CalGreen Building Standards).	√						High	Building
C2.	Require Energy Star equipment and appliances in new construction & renovations.	√					✓	High	Building
C3.	Specify no- or low-VOC (Volatile Organic Compound) materials.						√	High	Building
C4.	Install photovoltaic or other solar technology for city owned facilities wherever feasible.					✓		High	Capital Projects or Contracting Division / Department
C5.	Partner with the largest consumers of energy to encourage and promote their energy efficiency activities.	√						High	Electric Utility
C6.	Promote and implement programs to encourage load shifting to off-peak house and explore demand response solutions.	√						High	Electric Utility
C7.	Provide education on energy efficiency to residents, customers and/or tenants.	√						High	Electric Utility
C8.		√						High	Electric Utility
C9.		√						High	Electric Utility

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
	at Chamber of Commerce meetings; City working with community organizations, local service clubs, HOA's to educate and sign-up participants; Contractors marketing to residential and business customers; City Council recognizing "energy champions" at televised meetings.								
C10.	Implement low impact development practices that maintain existing site hydrology to manage storm water and protect the environment. (Use of low impact development practices is required by the new regional water quality permit.)		✓					High	Land Development
C11.	Require that developers recycle existing street material for use as base for new streets.			√				High	Land Development
C12.	Work with Waste Management to utilize billing statements or MVTV-3 to encourage businesses and residents to enroll in recycling programs.			√				High	Maintenance & Operations
C13.	Explore grants to pay for recycling collection devices and their maintenance to be placed with public trash bins.			√				High	Maintenance & Operations
C14.	Increase recycling at public events.			✓				High	Maintenance & Operations

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
C15.	Install water-efficient irrigation systems and devices and use water-efficient irrigation methods.		√					High	Parks & Community Services
C16.	Promote use of City's multi-use trail system.				~			High	Parks & Community Services
C17.	Establish Energy Efficiency and Conservation baselines. Set municipal and community wide energy demand and usage reduction goals and implement them by leveraging program resources and incentives already committed or potentially available.	~						High	Planning
C18.	Maintain City's Community Partnership program with Southern California Edison, The Gas Company, and Moreno Valley Electric Utility through the Energy Coalition. This partnership allows for funding the City can use for energy conservation marketing, education, and outreach efforts.	√						High	Planning & Electric Utility
C19.	City act as a model of energy conservation stewardship. Build upon historical and current energy conservation efforts as the foundation for continued efforts and education of the community on energy efficiency and conservation cost savings and environmental benefits.	√						High	Planning
C20.	Require new large developments (projects of regional significance) participate in the Savings by Design or similar programs to identify ways to improve energy	~						High	Planning

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
	efficiency of proposed construction.								
C21.		V						High	Planning
C22.	Adopt a dark sky ordinance and reduce unnecessary outdoor lighting.	√						High	Planning
C23.	Encourage passive solar design, to maximize passive solar heating during cool seasons, minimize solar heat gain during hot seasons, and enhance natural ventilation. (Existing design guideline).	~						High	Planning
C24.	Promote customer financing programs that assist with purchasing energy efficiency improvements. WRCOG has established a financing program through property taxes based on the guidelines in Assembly Bill 811. City is a partner in this program.	√						High	Planning
C25.		~						High	Planning
C26.	Review and update the landscape ordinance to continue lowering use of potable water for landscape irrigation. (City		√					High	Planning

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
	updated landscape standards in 2009 to further encourage water conservation.)								
C27.	Provide education about water conservation and available programs and incentives.		√					High	Planning
C28.	Protect existing trees and encourage the planting of new drought tolerant trees. Adopt a tree protection and replacement ordinance.		√					High	Planning
C29.	Work with developers to increase housing near transit through recently adopted mixed use zones. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)				~			High	Planning
C30.	Designate Transit-Oriented Development district(s). (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)				√			High	Planning
C31.	Explore building footprint, setbacks, height, scale, hardscape requirements to create compact building design techniques.	~					√	High	Planning
C32.	Explore reduced parking minimum requirements for mixeduse developments to encourage transit and non-motorized transportation.				V			High	Planning
C33.	Apply urban planning principles that encourage high density, mixed-use, walkable/bikeable neighborhoods, and coordinate land-use and transportation with open space systems and promote	√			√			High	Planning

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
	the efficient delivery of services and goods. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)								
C34.	Promote "Energy Efficiency" at City events or events that the City participates in such as 4 th of July and the March Air Show.	✓						High	Planning
C35.	Develop original programming on MVTV-3 that promotes energy efficiency, e.g. a program that follows a residential energy audit, to demonstrate how residents can make their homes more energy efficient.	√						High	Purchasing & Facilities, & Planning
C36.	Work with RTA to expand access to public transit by adding routes and shelters and benches within 1/4 mile of high density residential, commercial, employment areas, schools, and parks.				~			High	Transportation Engineering
C37.	Promote rideshare and trip reduction ride programs such as carpools/vanpools and preferential parking areas at City facilities and other large employers.				~			High	Transportation Engineering
C38.	Promote school rideshare programs to assist parents/students forming carpools.				~			High	Transportation Engineering
C39.	Adopt a Non-Motorized Transportation Plan. With focuses on pedestrian and bicycle routes and Master Sidewalk Plan. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction				V			High	Transportation Engineering

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
	Policies)								
C40.	Work with the school districts to improve pedestrian and bike access to schools and to restore or expand school bus service using lower-emitting vehicles.				√			High	Transportation Engineering
C41.		✓						Medium	Building
C42.	Encourage installation of solar and wind power systems and solar hot water heaters.					√		Medium	Building & Planning
C43.				√				Medium	Capital Projects
C44.	Establish City guideline that identifies criteria for using 'green concrete' that has been made with recycled aggregate for public improvements. Results in reduced CO ₂ emissions and reduces solid waste sent to landfills.			~			√	Medium	Capital Projects
C45.	Prepare a Master Sidewalk Plan that identifies "missing links" where sidewalks are necessary and identifies streets for which no sidewalk is required.				√			Medium	Capital Projects
C46.	Adopt and implement a policy to increase the use of renewable energy.	√						Medium	Electric Utility
C47.		√						Medium	Electric Utility

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
	saving behaviors, and direct leads and data to appropriate marketing channels to encourage more extensive energy upgrades.								
C48.						√		Medium	Electric Utility & Planning
C49.	Include energy storage where appropriate to optimize renewable energy generation systems and avoid peak energy use.					√		Medium	Electric Utility
C50.			√					Medium	Land Development
C51.	Actively explore new items to add to the list of accepted recycled materials with the City's franchised waste hauler.			✓				Medium	Maintenance & Operations
C52.	Implement programs to encourage and increase participation of diverted waste from landfills to meet or exceed state regulation requirements.			·				Medium	Maintenance & Operations
C53.	Provide easy and convenient recycling opportunities for residents, the public, and businesses.			✓				Medium	Maintenance & Operations
C54.	Provide education and publicity about reducing waste and available recycling services.			√				Medium	Maintenance & Operations
C55.	Require shaded and accessible pedestrian paths of travel between building entrances and parking lots, sidewalks, adjacent properties, and public transportation stops.	~			~			Medium	Planning

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
C56.	Increase housing density near transit. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)				~			Medium	Planning
C57.	Steer development towards infill rather than greenfield areas. Consider differential impact fee system with lower fees for areas with infrastructure.						√	Medium	Planning
C58.	Revise municipal code to ensure solar access is maintained for future solar electric and solar hot water installations.	✓				~	~	Medium	Planning
C59.	Consider a shade tree ordinance and utility incentives for shading south and west faces of dwelling units.	√					√	Medium	Planning & Electric Utility
C60.	Designate city staff person responsible for coordinating climate action by city departments.	√						Medium	Planning
C61.	Promote local demonstration gardens at Western Municipal Water District and the planned garden at the southeast corner of Cactus and Heacock, around the EMWD pump station.		~					Medium	Parks & Community Services
C62.	Encourage harvestable landscape.		√					Medium	Planning
C63.	Promote free shuttle service connecting to Metrolink station.				√			Medium	Transportation Engineering
C64.	Create travel routes that ensure destinations may be reached conveniently by public transit, bicycling and walking. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction				~			Medium	Transportation Engineering

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
	Policies)								
C65.	Work with WRCOG to develop a master plan to encourage use of neighborhood electric vehicles, which are energy efficient street legal vehicles.				√			Medium	Transportation Engineering
C66.	Coordinate with school districts to adopt the League of America Bicyclists' Cycling curriculum so students learn safest way to bike.				√			Medium	Transportation Engineering
C67.	Implement "Smart Bus" technology - GPS with electronic displays at stops to provide actual time data to passengers.				√			Medium	Transportation Engineering
C68.	Develop renewable fuel locations and electric plug-in stations including a map and street signage for drivers to find alternative fueling stations.				V			Medium	Transportation Engineering
C69.	Implement a regional transit program between educational facilities. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)				√			Medium	Transportation Engineering
C70.	Incorporate bicycle lanes, routes and facilities into street systems, new subdivisions, and large developments. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)				~			Medium	Transportation Engineering
C71.	Explore developing a Smart Growth Development Impact Fee matrix. Fee based on trips generated by project. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)	~			~			Medium	Transportation Engineering

	Reduction Measures Section II	Energy Use Reduction	Water Use Reduction	Recycling and Diversion	Alternative Transportation	Renewable Energy	Greenhouse Gas Emission	Cost Effectiveness	Lead Division
C72.	Evaluate and update existing General Plan street cross- sections to accommodate "complete streets" design standards.				V			Medium	Transportation Engineering
C73.	Incorporate public transit into the project's design. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)				√			Medium	Transportation Engineering
C74.	Accelerate implementation of solar energy-based technology through permitting process (e.g., reduced permit fees, streamlined permit approval process).					*		Low	Building
C75.	Where solar systems cannot feasibly be incorporated into the project at the outset, build "solar ready" structures.					✓		Low	Building
C76.	Consider changing existing and future illuminated streetlights to LED. The retrofit cost for LED lighting is not feasible at this point. SCE and MVU do not currently have a separate rate structure for LED.	√						Low	Special Districts

SECTION III - APPENDICES

General Plan Goals and Objectives

- Chapter 7. Energy conservation is a way to control energy costs, reduce reliance on foreign energy supplies and minimize air pollution. Energy efficiency can be derived in the arrangement of land uses, in the design of developments and the architecture of individual buildings. (GP Issues and Opportunities 7.6.2.)
- Chapter 7. Issues and Opportunities 7.6.2. The amount of energy consumed in automobile travel can be reduced if commercial and recreational opportunities are located near residential uses. Commuter travel can be minimized if there is a reasonable balance between jobs and housing within the area. Placing high intensity uses along transit corridors can also reduce automobile travel.

Reducing residential street width can affect microclimates and reduce the summer cooling needs of adjacent homes. The orientation of buildings can be arranged to affect the amount of heat gain. Shade trees can also cool microclimates and aid in energy conservation.

Building construction options are available to reduce energy consumption. Building construction methods include, but are not limited to, insulation of walls and ceilings, insulated windows and solar water heating systems. Many building energy conservation measures have been incorporated into Title 24 of the California Administrative Code and are required of all residential structures. (GP)

- Orient commercial development toward pedestrian use. Buildings should be designed and sited so as to present a human-scale environment, including convenient and comfortable pedestrian access, seating areas, courtyards, landscaping and convenient pedestrian access to the public sidewalk. (GP)
- Chapter 8. Energy Conservation 8.4.11 The City of Moreno Valley, through its housing rehabilitation programs provides grants or loan funds that include work for energy conservation repairs or replacements. The City of Moreno Valley, through its Neighborhood Preservation division, participates in utility energy conservation programs sponsored by private sector utility companies. When households participating in the City's housing rehabilitation programs require additional assistance in the area of energy conservation, utility discounts or replacement of inefficient appliances, staff provides information on programs available through utility companies. Depending on the availability of funds, utility companies make available weatherization services, replacement of inefficient air conditioners with evaporative coolers, replacement of refrigerators that are over 10 years old, repair or replacement of inefficient furnaces as well as free energy efficient compact fluorescent light bulbs. (GP)

- Objective 4.3 Develop a hierarchical system of trails which contribute to environmental quality and energy conservation by providing alternatives to motorized vehicular travel and opportunities for recreational equestrian riding, bicycle riding, and hiking, and that connects with major regional trail systems. (GP)
- 5-13 Implement Transportation Demand Management (TDM) strategies that reduce congestion in the peak travel hours. Examples include carpooling, telecommuting, and flexible work hours. (GP)
- 7.5.2 Encourage energy efficient modes of transportation and fixed facilities, including transit, bicycle, equestrian, and pedestrian transportation. Emphasize fuel efficiency in the acquisition and use of City-owned vehicles. (GP)
- 7.5.3 Locate areas planned for commercial, industrial and multiple family density residential development within areas of high transit potential and access. (GP)
- Chapter 5. Transportation Demand Management 5.3.5 Transportation Demand Management (TDM) strategies reduce dependence on the singleoccupant vehicle, and increase the ability of the existing transportation system to carry more people. The goal of TDM is to reduce single occupant vehicle trips during peak hours and modify the vehicular demand for travel.

A reduction in peak hour trips and a decrease in non-attainment pollutants can be achieved through the implementation of TDM strategies. Examples of the strategies include: carpooling, telecommuting, flexible work hours, and electronic commerce that enables people to work and shop from home.

- 7.5.1 Encourage building, site design, and landscaping techniques that provide passive heating and cooling to reduce energy demand. (GP)
 - 7.8.1 Encourage recycling projects by individuals, non-profit organizations, corporations and local businesses, as well as programs sponsored through government agencies. (GP)
 - Chapter 7. Solid Waste 7.3. The City Council adopted a "Source Reduction and Recycling Element" in 1992, describing how Moreno Valley plans to meet the goals mandated by AB939. The element includes strategies to address various components of the solid waste challenge, including the character of the waste stream, source reduction, recycling, composting, special waste (e.g. construction debris, auto bodies, medical waste, tires and appliances), education and public information, disposal facility capacity, funding and integration of the various components.

Moreno Valley works in concert with the local waste hauling company to meet its waste diversion requirements. Residential customers place recyclable materials at the curb for collection by the waste hauler, Waste Management of the Inland Empire. The waste hauler separates and markets the recyclable materials, including cardboard, paper, tin/metal, aluminum cans, plastics

and glass. In 2004, fifty-one percent of the solid waste generated in Moreno Valley was diverted from landfills. (GP)

- 7.3.1 Require water conserving landscape and irrigation systems through development review. Minimize the use of lawn within private developments, and within parkway areas. The use of mulch and native and drought tolerant landscaping shall be encouraged. (GP)
- 7.3.2 Encourage the use of reclaimed wastewater, stored rainwater, or other legally acceptable non-potable water supply for irrigation. (GP)
- 7-2 Advocate for natural drainage channels to the Riverside County Flood Control District, in order to assure the maximum recovery of local water, and to protect riparian habitats and wildlife. (GP)
- 7-4 Provide guidelines for preferred planting schemes and specific species to encourage aesthetically pleasing landscape statements that minimize water use. (GP)
- Maintenance of systems for water supply and distribution; wastewater collection, treatment, and disposal; solid waste collection and disposal; and energy distribution which are capable of meeting the present and future needs of all residential, commercial, and industrial customers within the City of Moreno Valley. (GP)
- 7-3 Maintain a close working relationship with EMWD to ensure that EMWD plans for and is aware of opportunities to use reclaimed water in the City. (GP)
- Provide landscaping in automobile parking areas to reduce solar heat and glare. (GP)
- 6.7.6 Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code. (GP)
- 7.5.4 Encourage efficient energy usage in all city public buildings. (GP)
- 7.5.5 Encourage the use of solar power and other renewable energy systems. (GP)
- A dark sky policy
- Chapter 9. 2.10.7 On-site lighting should not cause nuisance levels of light or glare on adjacent properties. (GP)
- Chapter 9. 2.10.8 Lighting should improve the visual identification of structures. Within commercial areas, lighting should also help create a festive atmosphere by outlining buildings and encouraging nighttime use of areas by pedestrians.(GP)

Resources

- ICLIE Local Governments for Sustainability (ICLEI) is a membership association of local governments committed to advancing climate protection and sustainable development.
- The Energy Coalition
- Community Energy Partnership
- Southern California Edison
- The Gas Company
- Eastern Municipal Water District
- Energy Star
- WRCOG
- Waste Management
- Moreno Valley Utilities
- Moreno Valley Unified School District
- Val Verde Unified School District